

Dale E. Miller

Principal/Hydrologist



Education

BS, Water Resources, Allegheny College, 1977

Background

A founding partner of Inter-Fluve, Inc., and managing principal of the Montana office, Mr. Miller has over twenty years of experience coordinating and managing large-scale stream channel restoration, fish habitat improvement, and bioengineered river bank stabilization projects around the world. His background is particularly well suited to the renaturalization of urban stream channels, requiring creative channel design approaches that integrate flood control, sediment management and riparian habitat development goals with morphological and hydraulic functionality. His strengths are applied in all project phases including project management, feasibility evaluation, design, preparation of plans and specifications, and construction oversight. Dale has undertaken several complicated multi-million dollar urban stream projects in the mid-West and mid-Atlantic, and his restoration experience extends to over 20 states, Argentina, the United Kingdom and Taiwan. He has developed innovative channel restoration techniques, such as an award-winning bioengineered river bank stabilization method that has now been successfully applied to over a dozen Inter-Fluve projects. Dale has taught courses in process-based channel design to local, state and Federal regulatory and resource agencies, as well as industry and private sector. He strives to raise the bar of quality in the relatively young river restoration industry by challenging the status quo and pushing the envelope on new technologies.

Selected Project Experience

Watercourse Projects for Milwaukee Metropolitan Sewerage District, WI. Over the last three years, Dale Miller has provided MMSD with a wide range of technical assistance during the development and implementation of the District's Watercourse projects. His involvement on these projects includes: project coordination and management, channel restoration design, streambank bioengineering, geomorphic assessment, sediment transport analysis, and peer design review. He has been involved with the following projects: Phases I and II of the Lincoln Creek Flood Control Master Plan; Milwaukee Watercourse System Planning on Oak Creek, the Root River, and the Menomonee River; Menomonee River Drop Structure Removal and Channel Restoration; Hoyt Park Streambank Stabilization on the Menomonee River; Menomonee River Sediment Study; Menomonee River Advanced Planning and Preliminary Design; Watercourse Design Specifications Review and Update; Kinnickinnic River Advanced Planning and Preliminary Design; and the Underwood Creek Preliminary Design.

Acid Brook Cleanup, NJ. Coordinated a multi-million dollar stream channel remediation project on the East Coast for a Fortune 100 corporation. Project entailed excavation and reconstruction of the entire stream channel and floodplain to the original configuration utilizing bioengineered stream bank revetment techniques designed for this project. Activities included development of a digital terrain model of 2.5 miles of existing channel, hydraulic modeling, authoring of a design document, production of construction ready plans, and supervision of installation of the stream with bioengineered banks.

Lower American River Bank Stabilization, CA. On behalf of the Sacramento Area Flood Control Agency, provided technical oversight to proposed bioengineered bank stabilization measures within the City of Sacramento, and contributed to a multi-agency Task Force directed to select solutions by consensus. Five sites, covering a total of 11,000 were under consideration. Authored a number of reports: rates of woven coir (coconut) fabric degradation; methods of cellular configuration of fabric-encapsulated soil, and stability under anticipated failure modes; plant root and shoot growth rates, density, length and volume for selected herbaceous species for proposed bioengineered treatments; and applicability of a biodegradable coir mat hydroponically pre-grown with herbaceous species.

Stabilization of the Little Miami River at Lake Isabella Park, OH. Prepared a geomorphic analysis, feasibility assessment, and conceptual plan for composite bioengineered bank stabilization along 1,200 feet of eroding bank on a Wild and Scenic River at a county park. Coordinated geotechnical and hydraulic analysis to complete preliminary design. Conducted meetings with skeptical stakeholders to demonstrate causes and extent of problem, explain the viability of non-traditional stabilization solutions, and describe the selected stabilization measures. Established a consensus on need for action and suitability of bioengineered measures, resulting in eventual permit approvals.

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River Road Landfill Remedy, NJ. Coordinated the Remedy Selection and Design Phases for an award winning \$3 million bioengineered bank stabilization project along the Raritan River adjacent to an abandoned landfill. Project entailed developing design criteria, characterizing the river hydrology, evaluating the vegetation component, investigating the geotechnical aspects and identifying bioengineering alternatives. Activities included development of a Remedy Selection Report, regulatory permits, construction specifications and design sheets.

Washington State Integrated Streambank Protection Guidelines. Dale Miller is currently working with Washington State Departments of Fish and Wildlife, Ecology and Transportation to edit and finalize the Integrated Streambank Protection Guidelines, a statewide document which is to be used as a tool for establishing acceptable approaches, methods, and techniques for stream and river bank stabilization in light of the Endangered Species Act in the State of Washington. The Streambank Protection Guidelines are prepared for a wide audience: WDFW staff who review Hydraulic Permit Applications for bank protection projects, engineers from the public and private sectors who design bank protection projects, and for planners and decision makers involved with aquatic resource policy.

Selected Publications

- Doyle, M.W., D.E. Miller, and J.M. Harbor. Should river restoration be based on classification schemes or process models? Insights from the history of geomorphology. In: 1999 ASCE River Restoration Mini-Symposium of the International Water Resources Engineering Conference. Seattle, WA. Aug, 1999.
- Miller, D.E. 1999. Deformable stream banks: can we call it a natural channel design without them? 1999 AWRA Specialty Conference, Bozeman, MT June, 1999.
- Fotherby, L. M., T.R. Hoitsma, and D.E. Miller. 1998. *Bioengineered bank stabilization on the Little Miami River.* In: 1998 ASCE Bank Stabilization Mini-Symposium of the International Water Resources Engineering Conference, Memphis, TN. Aug, 1998.
- Miller, D.E. and P. Skidmore. 1998. *The concept of deformable banks for stream bank stabilization and reconstruction.* In: 1998 ASCE Bank Stabilization Mini-Symposium of the International Water Resources Engineering Conference, Memphis, TN. Aug, 1998.
- Miller, D.E. and T R. Hoitsma. 1998. *Fabric-encapsulated soil method of stream bank bioengineering: a case study of five recent projects.* In: 1998 ASCE Wetlands and River Restoration Conference. Denver, CO. March, 1998.
- Miller, D.E., T.R. Hoitsma, and D. White. 1998. *Degradation of woven coir fabric from field samples.* In: ASCE Wetlands and River Restoration Conference. Denver, CO. March, 1998.
- Miller, D.E. 1997. *Fabric-encapsulated soil method for river bank stabilization.* Geotechnical Fabrics Report. 15(1): 48-53.
- Miller, D.E. 1996. *Design Guidelines for Bioengineered River Bank Stabilization.* In: Proceedings of the International Erosion Control Association 27th Annual Conference, Seattle, WA.
- Miller, D.E. 1992. *Bio-engineered Stream Channel Used to Restore New Jersey Brook.* Land & Water 36:12-14.

Selected Presentations and Workshops

- Sedimentation Engineering Design in River Restoration: Construction-Phase Activities. Short Course. 1999 ASCE International Water Resources Engineering Conference. Aug, 1999. Seattle, WA.
- Shear Stress Resistance of Naturally Vegetated Stream Banks. 1999 ASCE International Water Resources Engineering Conference. Aug, 1999. Seattle, WA.
- Urban Channel Design and Rehabilitation Short Course, University of Wisconsin-Madison. Sections on Design Criteria, Channel Design and Bank Stabilization. Feb., 1998 and Feb. 1999.
- The Concept of Deformable Banks for Stream Bank Stabilization and Reconstruction. 1998 ASCE Bank Stabilization Mini-Symposium of the International Water Resources Engineering Conference, Aug, 1998, Memphis, TN.
- Fabric-Encapsulated Soil Method of Stream Bank Bioengineering: A Case Study of Five Recent Projects and Degradation Rates of Woven Coir Fabric Under Field Conditions. ASCE Wetlands and River Restoration Conference. Mar., 1998, Denver, CO.
- Coir Fabric in Bioengineered Streambanks: An Evaluation of its Performance. International Erosion Control Association. Feb., 1998, Reno, NV.
- Design Guidelines for Bioengineered River Bank Stabilization. International Erosion Control Association 27th Annual Conference. Feb., 1996, Seattle, WA.
- Invited Panelist: Management of Watershed Development. Clean River Taiwan Seminar. US-AEP, Taiwan EPA, American Institute in Taiwan. Jan., 1995, Taipei, Taiwan, R.O.C.